

SILVER CREEK WATERSHED PROJECT

Summer 2007 Newsletter

Advantages of No-Till on Display at local Field Day

Over 140 farmers interested in saving time, money, and their soil attended the “No-Till Advantage Field Day” held June 27, 2007 at the Lloyd Schutte farm near Postville. The event detailed a successful no-till system utilized by farm operator Mike Schutte, and included presentations from ISU Extension and Natural Resources Conservation Service (NRCS) personnel. This year’s field day was sponsored by ISU Extension and the Soil & Water Conservation Districts of Fayette, Allamakee, Clayton, & Winneshiek Counties.

While many farmers have successfully adopted no-till systems for their corn/soybean rotations, most have experienced difficulty when attempting to utilize no-till in continuous corn. Mike’s farm operation currently centers on hog production, and he does not include alfalfa or soybeans in his crop rotation. While there is a definite learning curve associated with the switch to no-till, Mike’s efforts serve as a model for other farmers in northeast Iowa.

Mike began the field day by detailing his planting system, which he has modified over the last 10 years. He commented, “I like to take notice of what works for other people and then try it myself”. After experimenting with a zone tillage system, he eventually moved away from the coulters due to concerns about sidewall compaction in the root zone. He currently utilizes a set of aggressive row cleaners, which clears residue from a narrow band in front of each planting unit. Hog manure is targeted to fields that have been grid sampled according to soil type. His low-disturbance manure injector was also demonstrated at the site.

Schutte’s system continually evolves, and he has made other adjustments to his planter to increase its effectiveness. Mike stated, “There are three major advantages to no-till: soil conservation, equipment and labor savings, and that it works”. He estimates that his fuel use is less than $\frac{3}{4}$ gallon/acre, and that his labor input is less than 2 hours/acre. Over the last two years, his yields have topped 200 bushels/acre.



Mike Schutte (left) explains features of his planter to Dave Mellick and Paul Hunter.

ISU Extension Ag Economist Robert Tigner echoed Mike’s thoughts. Tigner noted that in a 50/50 corn/soybean rotation, production costs can be lowered by approximately \$19/acre by employing no-till. Given higher land values and increased rental rates, a move to no-till can have a big impact on profitability.

ISU Extension Crops Specialist Brian Lang commented that utilizing established conservation principles preserves your long term investment in your farming operation. “The land needs to be protected and handled wisely to ensure that it lasts”, he said. “Soil conservation plays a major factor in preventing erosion and keeping the soil where it belongs”. Lang explained that eliminating tillage passes improves soil stability. Earthworms essentially replace tillage in a no-till system, and help to improve soil structure so that rain soaks into the soil profile, instead of running across the surface and taking soil particles with it.

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No-till soybeans in a field near Monona

Lang pointed out that research data has shown that no-till corn yields are typically 5% lower than a chisel plow system in an average year, while soybean yields show little difference according to tillage methods. Even with slightly lower yields, a no-till system will demonstrate a higher net profit in both corn and soybean production due to reduced input costs. When our mindset is geared toward increased production, it is difficult to recognize that we’ve improved profitability with slightly lower yields.

Through hands on demonstrations, NRCS Soil Scientist Mike Sucik showed the beneficial changes in soil tilth, water infiltration, and reduced compaction that result from long term no-till systems. Sucik noted, “It takes most fields about 3 to 5 years of no-till before changes in the soil structure are apparent”. Lowered

carbon loss and increased soil organic matter levels are also observed long term.

Is no-till the right system for your farm? While the benefits are obvious, the system does present unique challenges. The initial step was demonstrated by the field day: Take notice of what works for others and try it yourself.



Terrace Design Options

Terraces are a popular component of conservation systems for sloping cropland in northeast Iowa. Due in part to the increasing number of corn and soybean acres and the corresponding loss of hay acres, the Clayton Soil and Water Conservation District (SWCD) has placed a priority on this practice.

The popularity of terraces and the rising cost of construction have created an annual shortfall of cost share dollars in Clayton County. The recent approval of the Silver Creek Watershed Project creates an additional source of cost share funds for watershed landowners and farm operators. Over the next three years, special cost share incentives (up to 75% of the cost of eligible practices) are available within the watershed. The District is promoting stream corridor, sinkhole protection, and buffer practices near the stream channel, and upland conservation practices that will keep soil in place, before it becomes a source of pollution.

Soil erosion is not always obvious. If you are losing a layer of soil equal to the thickness of a dime (about 8 tons/acre/year) your field is losing

topsoil faster than it is being generated. For farms with visible erosion problems, soil losses commonly exceed two to three times this level. Many landowners that use terraces have commented, “I don’t necessarily like terraces, but I like what they do”. The basic objective of terrace systems is to turn one long slope into a series of shorter slopes. Slowing surface runoff with terraces allows sediment to be trapped upslope, before it becomes a pollutant.

Terraces represent only one option. The same theory applies to other, less expensive conservation practices such as stripcropping and contour buffer strips. There are a wide variety of effective options to reduce soil loss on your farm, and sediment delivery to our streams and rivers.

Each year, about 125,000 feet of new terraces are constructed in Clayton County. There are three common terrace types:

1. Broadbase
2. Narrowbase
3. Grassed Backslope

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Broadbase terraces are often the first choice of landowners, since crops can be grown on both sides of the structure. Broadbase terraces are limited to gently sloping land (<8% slope). As the field slope increases, the backslope of a broadbase terrace becomes larger, adding cost and decreasing the farmability of the system. For slopes greater than 8%, narrowbase and grass backslope systems are recommended. Earthwork for broadbase terraces averages about \$2.80 per foot of constructed terrace.



Broadbase terraces shown after construction. Crops can be planted on both sides of the structure.

Narrowbase terraces have become more popular with the trend toward larger planting equipment. Narrowbase terraces have steep front and back slopes which are not farmed. Part of their popularity is due to the location of the tile intake, which is placed directly adjacent to the structure. This design allows the farm operator to avoid the difficulties associated with planting and spraying the area between the tile intake and the terrace ridge. Narrowbase systems require less soil to construct, and are therefore cheaper to install. Most narrowbase terraces will cost a little over \$2.00 per foot of constructed terrace.



Narrowbase terraces - the tile intake is directly adjacent to the terrace front slope.

Grassed Backslope terraces can normally be built on slopes up to 18%. The design features a farmable front slope, and a steep back slope that is not farmed. The cost of a grassed backslope terrace is usually between the high of a broadbase and the low of a narrowbase terrace, around \$2.50 per foot.



Grassed backslope terraces - there is about 35' of farmable distance between the intake and ridge.

“Terrace Design Options” continued from page 3

While terrace systems represent permanent improvements, they are also significant investments. The cost of terrace construction has risen sharply over the last three years with spikes in fuel and material inputs. Before cost share is considered, most tile outlet terrace systems will cost an average of \$600 per acre treated. A recommended guideline to follow when considering terrace construction is “use terraces to make your best land better”.

Terraces and buffer strips are most effective when used in combination with other practices, such as conservation tillage and crop rotation. A combination of structural practices, buffers, and reduced tillage creates a very effective system for reducing soil erosion. After considering the benefits of terraces or buffer strips and a no-till planting system, soil loss is estimated to be less than 2 tons/acre. In addition to producing corn, soybeans, and alfalfa, farms that utilize the right combination of conservation systems should also be gaining topsoil.

Four Silver Creek landowners installed terraces on their farms this spring. The list of applicants for fall terrace construction work is quite long, and currently includes twenty-one names. If you have a project in mind, project staff can provide you with an idea of how a practice benefits your farm, and a rough cost estimate, during a short site visit.



A new terrace, no-till soybeans, a buffer strip, and a grassed waterway produce a very effective system for reducing soil loss.

Silver Creek Watershed Project Eligible Practices and Cost Share Rates

Conservation Practice	Cost Share
Terraces	75%
Grade Stabilization Structures (Ponds)	75%
Water & Sediment Basins	75%
Streambank Protection	75%
Grassed Waterways	75%
Resource Protection Fencing	75%
Animal Waste Management Systems	75% *
Pasture Improvement	Up to \$90/acre

**Landowners that apply for assistance with animal waste management systems must first secure assistance through the Environmental Quality Incentives Program (EQIP) for the first 50% of project cost.*

The Clayton Soil and Water Conservation District is an equal opportunity employer and provider.

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